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The Effect and Mechanisms of Electroacupuncture at Zusanli Acupoint on Repeated Acid Injections Induced Muscle Pain

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Background & Aim :
Tissue acidosis may result from ischemia, inflammatory conditions, and exercise. Acupuncture has the advantage to treat chronic pain with convenient and inexpensive. Many studies indicated that ASIC3-containing channels were involved in pain sensation. This study wants to investigate the analgesia mechanisms of electroacupuncture at Zusanli (ST36) acupoint and the role of acid-sensation ion channels 3 (ASIC3) in chronic muscle pain (CMP) model.

Materials & Methods :
We induced this animal model by 2 intramuscular injections of acidic (pH 4) saline at day 0 and day 5, and examined the anti-nociception effect of Electroacupuncture (EA) at the Zusanliacupoint at 2 Hz low-frequency. Animal mechanical hyperalgesia was evaluated using electronic von Frey filaments. We verified the expression of ASIC3 in CMP and EA-treated groups with immunohistochemistry staining and Western blot in dorsal roots ganglion (DRG) neurons.

Results :
We have successfully established the CMP model by repeating acid saline injection. EA at Zusanliacupoint can reliably reduce mechanical hyperalgesia through von Frey filament test. Importantly, the expression of ASIC3 was increased after 8 days and further attenuated by 2 Hz EA stimulation.

Conclusion :
We showed that EA can successfully abate pain in CMP model. We suggested that ASIC3 may participate in CMP and further influenced by EA stimulation.

Keywords:
Acupuncture, chronic muscle pain, ASIC3

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